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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS

In re Patent Application of: WRIGHT ET AL.	
Serial No. 09/976,647	Examiner: D. Crosland
Filing Date: October 11, 2001	Art Unit: 2612
Confirmation No. 2560	
For: WIRELESS, GROUND LINK-BASED AIRCRAFT DATA COMMUNICATION SYSTEM WITH ROAMING FEATURE	Attorney Docket No. ASD-15 (51021-CON1)

RESPONSE TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF (37 CFR 41.37)

VIA EXPRESS MAIL
MS Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Notification of Non-Compliant Appeal Brief (37 CFR 41.37) mailed October 4, 2007, Appellant submits the Appeal Brief that corrects the inconsistencies and corrects the Appeal Brief to state the status of cancelled claims 1-58 in the status of claims section and includes the proper mapping of the independent claims of appeal to the specification by page and line number and to the drawings.

The exhibits from Appendix B as the Evidence Appendix had been previously submitted and are not submitted with this resubmittal of the Appeal Brief. The $500.00 large entity fee for filing the brief had been previously submitted.

In re Patent Application of:
WRIGHT ET AL.
Serial No. **09/976,647**
Filed: **October 11, 2001**
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If the Patent Appeal Specialist has any questions or suggestions, the undersigned attorney would appreciate a telephone call.

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DATE OF DEPOSIT: November 5, 2007

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Respectfully submitted,

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APPELLANT'S APPEAL BRIEF

VIA EXPRESS MAIL
MS Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith is Appellant's Appeal Brief together with the requisite **$500.00**, large entity fee, for filing a brief to be charged to Harris Corporation Deposit Account No. **08-0870**. If any additional extension and/or fee is required, authorization is given to charge Harris Corporation Deposit Account No. **08-0870**.

(1) Real Party in Interest

The real party in interest is HARRIS CORPORATION, assignee of the present application as recorded on November 14, 1995, in the great grandparent patent application Serial No. 08/557,269, filed November 14, 1995, now U.S. Patent No. 6,047,165, at Reel 7778, Frame 0392.

(2) Related Appeals and Interferences

At present, a Request for Ex Parte Reexamination of the great grandparent application for U.S. Patent No. 6,047,165 has been granted as reexamination control number 90/008,567. A Notice of Intent to Issue Ex Parte Reexamination Certificate has been issued in Control No. 90/006,843 for U.S. Patent No. 6,308,045. Reissue application Serial No. 10/703,031 for U.S. Patent No. 6,353,734 is pending and an After Final Amendment was filed on August 7, 2006.

(3) Status of the Claims

Claims 1-58 have been cancelled. Claims 59-75 are pending in the application, all of which are rejected and are being appealed herein. Applicants originally copied these claims verbatim from U.S. Patent No. 6,181,990 granted January 30, 2001 to John Francis Grabowsky and David Ray Stevens (hereinafter "Grabowsky") for purposes of provoking an interference with that patent.

(4) Status of the Amendments

All amendments have been entered and there are no further pending amendments. A copy of the claims involved in this appeal is attached hereto as Appendix A.

(5) Summary of the Claimed Subject Matter

The claimed invention as described in the application is shown in FIGS. 1, 1A, 2, 3, 4, and 5, which are reproduced below.

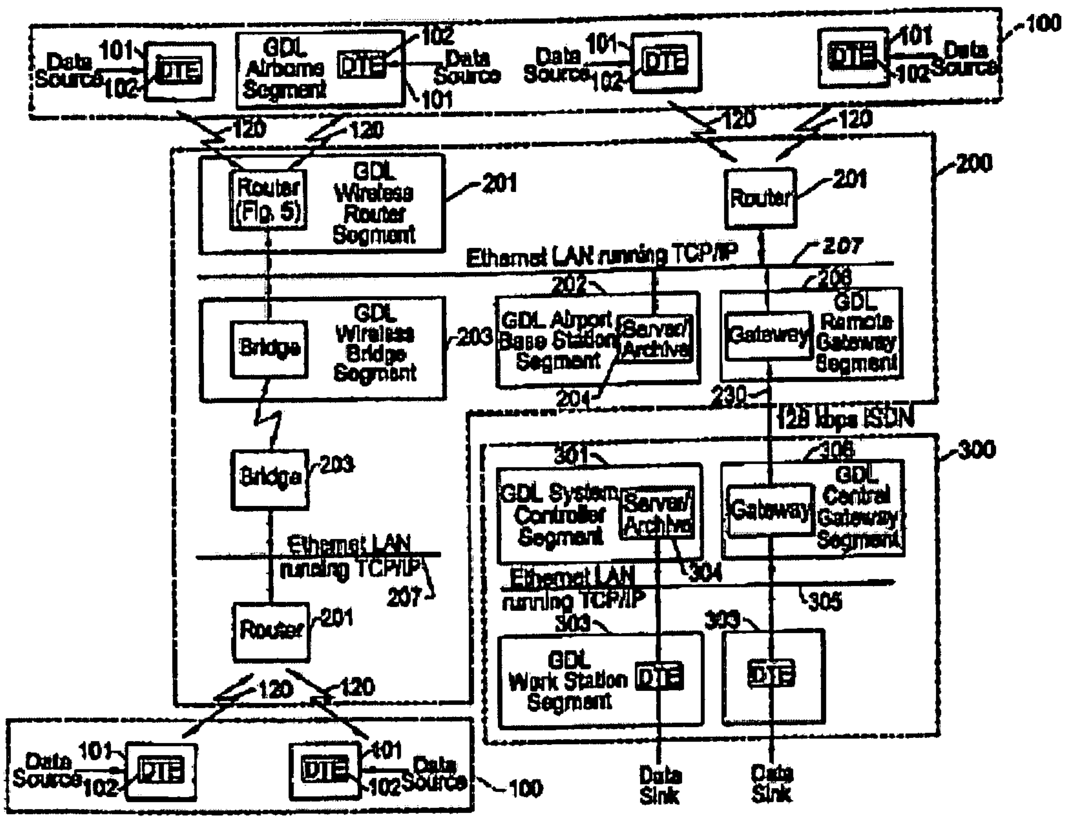
Data Source
101
102
DTE
GDL Airborne Segment
Router (Fig. 5)
GDL Wireless Router Segment
Router
Ethernet LAN running TCP/IP
Bridge
GDL Wireless Bridge Segment
GDL Airport Base Station Segment
Server/ Archive
Gateway
GDL Remote Gateway Segment
128 kbps ISDN
GDL System Controller Segment
GDL Central Gateway Segment
GDL Work Station Segment
Data Sink
100
120
200
201
202
203
204
206
207
230
300
301
303
304
305
306

FIG. 1

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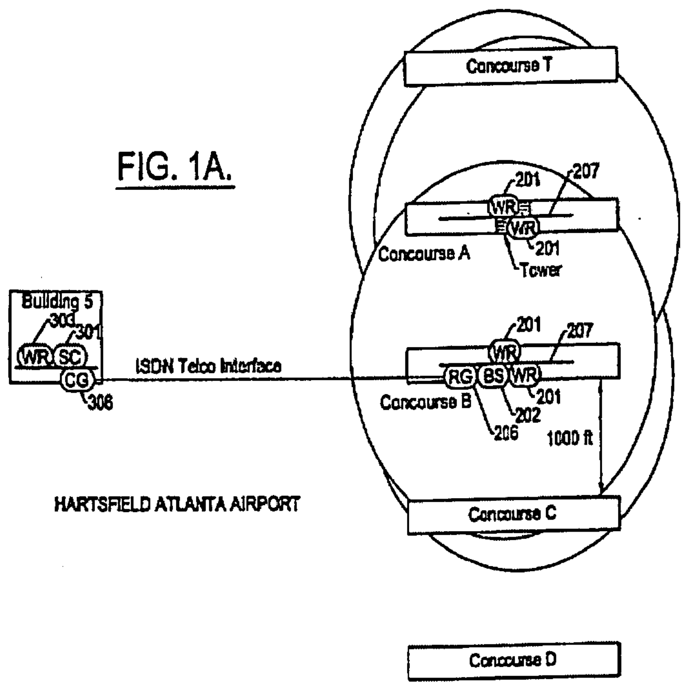
FIG. 1A.



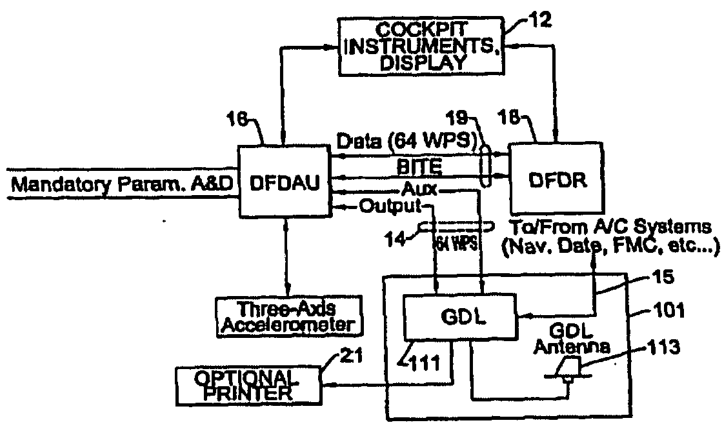


FIG. 2

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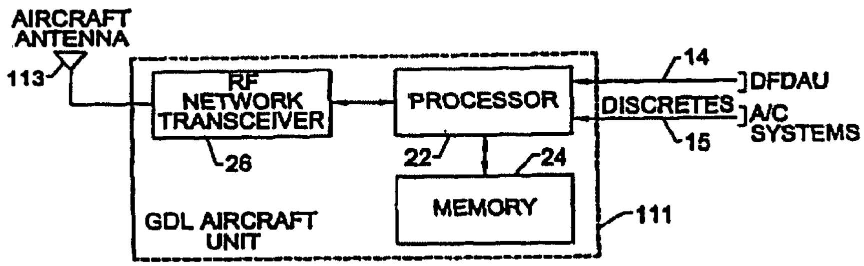

FIG. 3

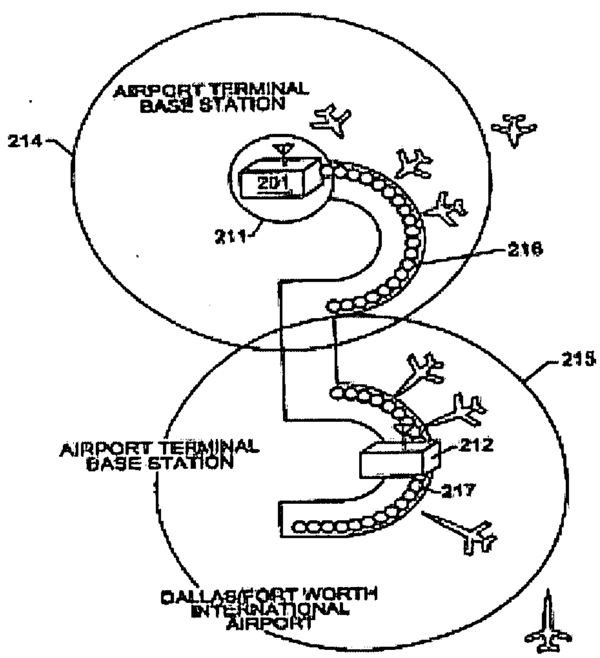

FIG. 4

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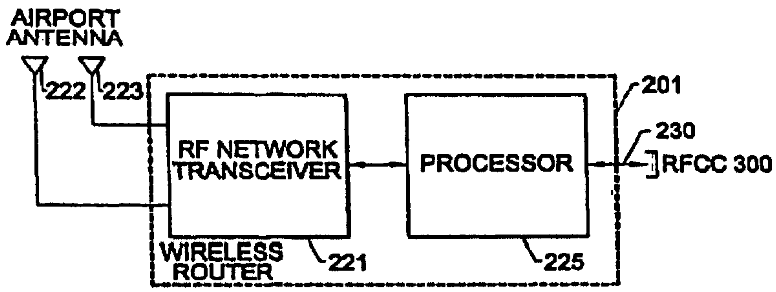


FIG. 5

The claimed invention in this application is directed to an aircraft data transmission system and method of transmitting aircraft flight data from an aircraft.

Claim 59 is an independent claim directed to an aircraft data transmission system in which the aircraft has a data acquisition unit 16 and includes a data storage medium 111 having stored thereon flight data gathered in-flight by at least a first sensor on the aircraft. See page 21, lines 11-17 and page 20, lines 1-26 and FIGS. 2 and 3 reproduced above. A communications unit 101 is located in the aircraft and in communication with the data acquisition unit. See page 16, lines 19-22 and page 20 lines 16-22. At least a second sensor is configured to sense landing of the aircraft. See page 41, lines 5-10. A cellular infrastructure is defined by wireless routers 201 and base stations 202 and formed of cells 214, 215 and is in communication with the communications unit after the aircraft has landed such that the cellular infrastructure communicates the flight data. See for example FIGS. 1A and 4 and page 15, lines 23-24; page 23, lines 21-23; page 37, lines 20-25; and page 17, lines 18-23. This communication is initiated when at least a second sensor senses the landing of the aircraft. See page 41,

lines 7-9. A data reception unit 204 in association with a server/archive 304 is in communication with the cellular infrastructure. See page 17, lines 18-23. This flight data includes time, air speed, altitude, vertical acceleration and heading data relating to a flight of the aircraft.

As noted in dependent claims 60-64, the data reception unit can be in communication with a cellular infrastructure 214, 215 via the internet 207 (claim 60) or public switched telephone network 200, 304 (claim 61) using the illustrated ISDN Telco and have at least one modem, such as at the base station 202, and in communication with the cellular infrastructure (claim 62). See FIG. 1 and page 18, lines 6-9. The cellular infrastructure can include an antenna 222, transceiver subsystem 221 in communication with the antenna and a controller 225 in communication with the transceiver subsystem (claim 63). See FIG. 5 and page 25, lines 18-23 and page 26, lines 3-6. The data reception unit can also include a router 201 and a processor as a server 304 in communication with the router 201. The processor 304 can have a storage unit (claim 64). See FIG. 1 and page 19, lines 5-12.

Independent claim 65 is directed to the aircraft data transmission system where the aircraft includes a data acquisition unit 16 and data storage medium 111 having stored thereon flight data gathered in-flight by at least one sensor on the aircraft, comprising a sensing means for sensing the landing of the aircraft and a means 101 for transmitting the flight data from the data acquisition unit, via a cellular infrastructure 214, 215 after the aircraft has landed, wherein transmission of the data is initiated when the sensing means senses the landing of the aircraft. See FIGS. 1A, 2, 3 and 4, and page 20, lines 1-26; page 21, lines 11-17; page 41, lines 5-10; page 16, lines

19-22; page 15, lines 23-24; page 23, lines 21-23; page 37, lines 20-25; and page 41, lines 7-9. Means 300 receives the flight data from the cellular infrastructure. See page 17, lines 18-23. The flight data includes time, air speed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft.

Dependent claims 66 and 67 are directed to the processor 304 that transmits and receives data. See FIGS. 1 and 3; and page 19, lines 5-12.

Independent claim 68 is directed to a method of transmitting aircraft flight data from an aircraft by receiving flight data from a data acquisition unit 16 and receiving a signal indicating a landing of the aircraft from at least a first sensor. See FIG. 1 and page 20, lines 1-26; page 21, lines 11-17; and page 41, lines 5-10. The method further comprises transmitting the flight data using a cellular communications infrastructure 214, 215 after the aircraft has landed, wherein the cellular communications infrastructure is accessed in response to the signal and receiving the transmitted flight data. See FIGS. 1A and 4, and page 15, lines 23-24; page 23, lines 21-23; page 37, lines 20-25; page 41, lines 7-9; and page 17, lines 18-23. This flight data is gathered in-flight by at least a second sensor on the aircraft, and includes time, air speed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft. See FIGS. 2 and 3, and page 20, lines 1-26.

Independent claim 69 is directed to a computer-implemented method of transmitting aircraft flight data from an aircraft by receiving flight data from a digital flight data acquisition unit 16, wherein the flight data is gathered in-flight by at least a first sensor on the aircraft and includes

time, air speed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft. See FIGS. 2 and 3; and page 20, lines 1-26; and page 21, lines 11-17. The method further comprises receiving a signal indicating a landing of the aircraft from at least a second sensor; processing the flight data to prepare the data for transmission; and transmitting the processed data via a cellular infrastructure 214, 215 after the aircraft has landed, wherein the cellular infrastructure is accessed in response to the signal. See FIGS. 1A and 4; page 41, lines 5-10; page 16, lines 19-23; page 20, lines 16-22; page 15, lines 23-24; page 23, lines 21-23; and page 41, lines 7-9.

Dependent claims 70-72 are directed to receiving the transmitted data at a flight operations center 300, including using an internet 207 or public switched telephone network 200, 304 before receiving the transmitted data at a flight operations center 300. See FIG. 1, and page 18, lines 6-9.

Dependent claim 73 is directed to compressing the flight data, encrypting the flight data, segmenting the flight data and constructing packets of data from the segmented flight data. See FIG. 1, and page 27, lines 9-12, 19-20 and 25; page 31, line 10; and page 32, line 2.

Dependent claim 74 is directed to acknowledging receipt of the transmitted data, reassembling the received data, decrypting the reassembled data, uncompressing the decrypted data and storing the uncompressed data. See FIG. 1, and page 9, lines 1-24 and page 41, lines 9-13.

Independent claim 75 is directed to a computer readable medium that stores instructions such that when executed by a processor, causes the processor to perform the steps of: receiving flight data from a digital flight data acquisition unit in an aircraft, wherein said flight data is gathered in-flight by

at least a first sensor on the aircraft, and includes time, airspeed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft; receiving a signal indicating a landing of the aircraft from at least a second sensor; processing said flight data to prepare said data for transmission; and transmitting said processed data via a cellular infrastructure 214, 215 when the aircraft has landed, wherein the cellular infrastructure is accessed in response to the signal. See FIGS. 1A, 2, 3 and 4; page 1, lines 1-2; page 20, lines 1-26; page 21, lines 11-17; page 16, lines 19-22; page 23, lines 21-23; page 37, lines 20-25, and page 41, lines 7-9.

Reference can also be made to the previous Amendment Under 37 C.F.R. §1.607 as filed on April 20, 2006, which sets forth a claim chart for claims 59-75 and indicates where support is found for the claims within the disclosure.

In operation, the DFDAU 16 and DFDR 18 are operative with the Ground Data Link (GDL) 101 data storage and communications unit 111 that stores flight data. The GDL unit synchronizes with the flight parameter data stream from the DFDAU 16 and stores the collected data in memory. There are a plurality of sensors, described in the specification as aircraft flight parameter transducers as shown in FIG. 2 and listed at page 20 at lines 11-15. The aircraft data is provided by the airborne data acquisition unit in a compressed and encrypted format that is automatically downloaded to an airport-resident base station segment when the aircraft lands. A second transducer, i.e., a second sensor, senses the landing of the aircraft in order to download automatically any flight data.

Communications cells defining the cellular network are shown in FIG. 1A and defined by wireless routers 201 and base stations 202. As shown in FIG. 4, the cells 214, 215 are part of

the system as part of a cellular infrastructure typical of cellular telephone networks. Data is communicated through this network to the server/archive 204, 304. This data can be automatically downloaded when the aircraft lands and the second sensor, i.e., transducer, must be used.

The Federal Aviation Administration §121-343 (1994) (Exhibit 1) mandates that large airplanes that fly above 25,000 feet and turbo-engine powered airplanes must be equipped with one or more approved flight recorders, and must record data relating time, altitude, air speed, vertical acceleration and heading. Thus, any flight data acquired by the DFDAU and DFDR inherently includes this listed data.

The transmission control protocol/internet protocol (TCP/IP) is operative in the Ethernet LAN 207 with the Telco connection as shown in FIG. 1 and with the internet. The server/archive 304 has a gateway segment 306 and is in communication with the ground subsystem 200 via the ISDN Telco as shown in FIG. 1. The Telco is a public switched telephone network. The network transceiver 26 includes a modem to modulate/demodulate signals. The base station 202 includes a modem with the server 204 to demodulate/modulate signals and is operative with the Ethernet LAN 207. The antenna 222, 223 is shown in FIG. 5 with the transceiver 221 and the controller/processor 225.

The router 201 is operative with the server 304 and the archive includes a memory and database management software. Source coding can be used for data compression. The aircraft data is downloaded as compressed data and can be encrypted and segmented into channels such that the flight data is multiplexed. TCP/IP is a packet protocol as shown in FIG. 1, and the system produces a "flight performance data packet." Polling occurs and

any receipts of packets can be acknowledged. Retransmissions are requested when errors occur as is standard for TCP/IP.

(6) Grounds of Rejection to be Reviewed On Appeal

Claims 59-75 stand rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Examiner contends that the claim language "wherein said flight data includes time, air speed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft" is new matter unsupported by the original disclosure.

Claims 59, 62-70 and 75 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,351,194 to Ross et al. (hereinafter "Ross") in view of U.S. Patent No. 4,729,102 to Miller, Jr. et al. (hereinafter "Miller '102"). Claims 60 and 71 stand rejected under 35 U.S.C. §103(a) as unpatentable over Ross and Miller 102 as applied in claims 59 and 70, and further in view of U.S. Patent No. 5,652,717 to Miller et al. (hereinafter "Miller '717"). Claims 61 and 72 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ross and Miller '102 as applied in claims 59 and 70, and further in view of U.S. Patent No. 5,943,399 to Bannister et al. (hereinafter "Bannister"). Claims 73 and 74 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ross in view of Miller '102 and further in view of U.S. Patent No. 5,463,656 to Polivka et al. (hereinafter "Polivka").

(7) Argument

As will be described in greater detail below, Applicants respectfully submit that no new matter has been added. Applicants also submit that there is no proper motivation or

suggestion to combine the prior art as proposed by the Examiner. Rather, there can be no motivation or suggestion to combine the references as the Examiner proposes, as the prior art, taken as a whole, teaches away from making such a selective combination of references. Moreover, such a selective combination would likely render the primary reference Ross unsatisfactory for its intended purpose.

A. Previous Prosecution History

The claims now pending in this application are the claims previously copied and amended to include the recitations added during a reexamination of Grabowsky.

For purposes of clarity, a brief explanation of the procedural history of this application that was originally filed with an Amendment Under 37 CFR §1.607 to provoke an interference is set forth.

In an Office Action dated August 9, 2002, the Examiner had rejected the originally copied claims from Grabowsky as being unpatentable, and thus, an interference could not be initiated since a prerequisite for interference under 37 CFR §1.606 is that the claim be patentable to the applicant subject to a judgment in the interference. Original claims 59, 62-70 and 75 were rejected as anticipated by Ross, and other claims as obvious over Miller '717 and Bannister, or Ross in view of Polivka.

A request for reexamination of Grabowsky was filed on August 12, 2003 as application control no. 90/006,742. During the reexamination, the patent owner amended independent claims to overcome the rejections over the cited prior art. In the reasons for patentability/confirmation mailed October 3, 2005, the Examiner stated that claims 1-51 of Grabowsky are patentable over the prior art of record. According to the Examiner, as argued by

the patent owner, the art of record failed to teach an aircraft data transmission system and method comprising, among other limitations, at least one first sensor on the aircraft which gathers in-flight data and at least one second sensor configured to sensing a landing of the aircraft, wherein communication is initiated via a cellular infrastructure in response to the second sensor sensing the landing of the aircraft.

Applicants amended claims 59, 65, 68, 69 and 75 in the manner as allowed in the reexamination of Grabowksy in the Amendment filed on April 20, 2006. Applicants' disclosure specifically recites a plurality of transducers as set forth in the claim chart submitted in the Remarks section of that Amendment, corresponding to at least first and second sensors.

Grabowsky had also amended the independent claims to include the recitation that the flight data includes time, airspeed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft. Those flight data parameters were included in Applicants' claims filed in the Amendment on April 20, 2006. In that Amendment, Applicants submitted Federal Aviation Administration Section 121-343 (1994) (Exhibit 1), which mandates that large airplanes certified for operation above 25,000 feet, or turbine-engine powered, must be equipped with one or more approved flight recorders that record data relating to time, altitude, airspeed, vertical acceleration and heading. Other flight data are also recorded as set forth in the regulation. Any flight data acquired by the DFDAU and DFDR includes this data. These parameters are directly from the FAA requirements for "black boxes," i.e., the flight data recorders.

In the Office Action dated July 24, 2006, the Examiner stated that an interference could not be provoked because: (1) the claims contained new matter directed to the inclusion of the

flight parameters: "wherein said flight data includes time, air speed, altitude, vertical acceleration, and heading data relating to flight of the aircraft;" and (2) the claims were not patentable to Applicants. The Examiner argued that Miller '102 was not considered during the reexamination proceedings.

B. The Claims Do Not Add New Matter

The original instant application as filed specifically recited that the flight performance data generated by the DFDAU and supplied to the aircraft's flight data recorder was a compressed copy of the flight data. As stated in the Summary of the Invention section of the instant application:

> "A principle function of the GDL unit is to store a compressed copy of the (ARINC 717) flight performance data generated by the DFDAU and supplied to the aircraft's flight data recorder."

The ARINC 717 document refers to ARINC Flight Data Acquisition and Recording System Specification (the 717 document), prepared by the Airline Electronic Engineering Committee and published by Aeronautical Radio, Inc. (ARINC) (Exhibit 2). The 717 document includes many other flight data parameters besides the listed time, air speed, altitude, vertical acceleration and heading data relating to a flight of the aircraft. The claimed parameters, however, are those parameters set forth as required under FAA guideline Section 121.343 (Exhibit 1) for flight recorders.

One skilled in the art understands that any "black box" and DFDAU system gathers data relating to time, air speed, altitude, vertical acceleration and heading data. These are

minimum flight data parameters that are required to be sensed, gathered and stored throughout the flight of an aircraft by the DFDAU and supplied to the aircraft's flight data recorder. Claim 1 as previously amended and copied from Grabowsky included these essential flight data parameters required under FAA regulations and set forth in the 717 document.

Therefore, the recitation of the flight data including time, air speed, altitude, vertical acceleration and heading data relating to a flight of the aircraft are required parameters that are included as part of the compressed copy of the flight performance data generated by the DFDAU and gathered and stored in-flight as part of any aircraft system that follows the FAA guidelines and ARINC standards set forth in the 717 document.

The 717 document submitted as Exhibit 2 was published on April 1, 1998. The third page has the history as adopted by the Airline Electronic Engineering Committee. The earliest date is December 8, 1978 as reflected on that sheet. The 717 document indicates that the required, minimum parameters of time, air speed, altitude, vertical acceleration and heading data relating to a flight of the aircraft are required parameters that antedate the November 14, 1995 filing date of the original application from which this continuation application is based and the filing date of Grabowsky on July 30, 1998. Time (GMT) is shown at Attachment 6, ARINC 429 DITS Port 7 at page 50. Air speed is shown at Section 4.3.1 Labeled Aircraft Data on page 12. Radio Altimeter (Altitude) is shown at Attachment 6 ARINC 429 DITS Port 9 on page 50. Vertical Acceleration is shown at Attachment 5-2 on Page 45, as Analog Input No. 1. Heading is shown at ARINC 429 DITS Port 15 at Attachment 6 on page 50.

Section 2163.07(a) of the Manual of Patent Examining Procedure (MPEP) sets froth the standard for inherency.

> 2163.07(a) Inherent Function, Theory, or Advantage By disclosing in a patent application a device that inherently performs a function or has property, operates according to a theory or has an advantage, a patent application necessarily discloses that function, theory or advantage, even though it says nothing explicit concerning it. The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter. *In re Reynolds*, 443 F.2d 384, 170 USPQ 94 (CCPA 1971); *In re Smythe*, 480 F.2d 1376, 178 USPQ 279 (CCPA 1973). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

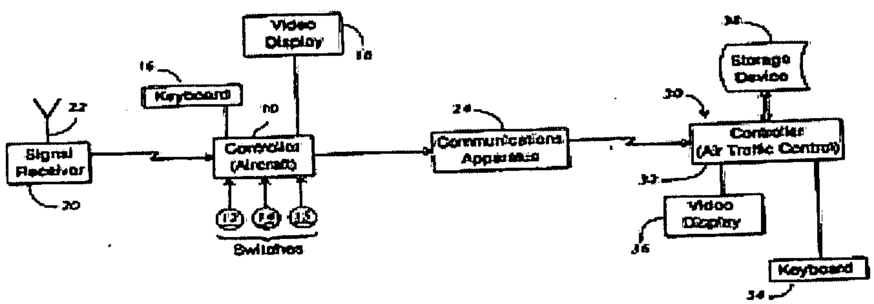
The Federal Circuit has also noted that to establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 U.S.P.Q.2d 1746, 1749 (Fed. Cir. 1991).

As noted before, persons of ordinary skill could recognize that the "black box" and DFDAU system gathers data relating to time, air speed, altitude, vertical acceleration and heading data as minimum flight data parameters. As noted in the Summary of the Invention section of the instant application, one reading that portion of the specification would know that the claimed invention would include such data.

C. Claims 59, 62-70 and 75 Are Not Obvious Over Ross in View of Miller '102

Ross is directed to cancelling a flight plan of an aircraft to facilitate release of the Instrument Flight Rules (IFR) air space to other aircraft, and communicating the location of a downed aircraft during emergencies.

The basic system shown in FIG. 1 of Ross is set forth below.



As shown in FIG. 1 reproduced above, Ross has a controller 10, such as a TravelMate 4000 Texas Instrument notebook computer, which communicates with a communications unit 24 as a cellular telephone in a preferred embodiment. The controller includes a video display 18 and keyboard 16. Before take-off, a pilot enters a flight plan into the controller 10 using the keyboard 16 and display 18. A signal receiver 20 and antenna 22 receive GPS signals and transmits them to the controller 10. The GPS signals provide position data to the controller 10. These position signals can be communicated by the communications unit 24 as a cellular telephone signal. In an alternate embodiment, the controller 10 communicates with the cockpit instruments in the aircraft and receives from the cockpit instrumentation data relating to the altitude, air speed and

direction of the aircraft. The controller can transmit this data to an air traffic control 30 via the communications unit 24 (cellular telephone).

Three switches 12, 14 and 15 are connected to the controller 10. Switch 12 is a high impact emergency switch that is activated automatically upon a crash landing of the aircraft. At that time, position data from the GPS and the identification of the aircraft is transmitted as explained in column 6 starting at line 23 through line 36.

Switch 15 is a manual switch that is activated by the pilot "in-flight" when an in-air emergency occurs. At that time, the position information and any flight plan entered by the pilot is communicated through the communications apparatus 24 as real-time, instantaneous data that is transmitted in-flight. At the same time, the altitude, air speed and direction of the aircraft at that particular time in the air as received from the cockpit instrumentation can be communicated. Thus, when the emergency switch 15 is activated in the air, (1) position data from the GPS, (2) cockpit instrumentation data, and (3) the flight plan are transmitted as real-time data for the instant in time when the pilot activates the switch 15.

During a normal landing, switch 14 is activated either manually or automatically. At that time, the flight plan is cancelled. Position data is not transmitted during a normal landing because the position is already known (the aircraft has safely landed at its destination). The only requirement is to cancel the flight plan.

The chart below illustrates some of the basic differences between Ross and the claimed invention.

In re Patent Application of:
WRIGHT ET AL.
Serial No. **09/976,647**
Filed: **October 11, 2001**
______________________________/

Ross 5,351,194	**Claimed Invention**
Apparatus and Method for Closing Flight Plans and Locating Aircraft	Aircraft Flight Data Acquisition and Transmission System
Real-Time Data	Stored In-Flight Data
Airborne Transmission	Ground Transmission Only
Tracking and Locating	Full Flight Performance Data
On Ground "Cancels Flight Plan" or Crash On Ground Sends Location and ID	Ground Transmission includes flight data gathered in-flight and time, air speed, altitude, vertical acceleration and heading data

Ross is directed to transmitting real-time position data at one time during a flight (an emergency). The only data transmitted is tracking and locating information that is based upon the instantaneous data received from the GPS, the aircraft instrumentation, and the previously input flight plan. If a crash occurs, the aircraft sends data relating to the aircraft location and ID. If a normal landing occurs, the flight plan is cancelled and the only data would be a short data packet that cancels the flight plan.

The claimed invention, on the other hand, is directed to an aircraft flight data acquisition and transmission system in which in-flight data from the DFDAU is stored throughout the flight of the aircraft. After the aircraft lands, this stored data that has been gathered in-flight is transmitted as a ground transmission. The flight data gathered in-flight, stored throughout the flight, and transmitted after landing includes the time, air speed, altitude, vertical acceleration and heading.

Sensors 24 gather different in-flight parameters, such as the time, air speed, altitude, vertical acceleration and heading data, relating to the flight of the aircraft. This data is gathered during the entire aircraft flight and stored in a

data acquisition unit, which includes the DFDAU processor 22. Upon the aircraft's landing, such as sensed by the illustrated weight-on-wheels mechanism, the system downloads this gathered and stored data.

The claimed invention is <u>opposite</u> from Ross because Ross is directed to transmitting real-time data during a flight (not after landing). This real-time data relates to the aircraft position and the flight plan and is transmitted when the pilot pushes the emergency switch 15. If a crash occurs and the high impact emergency switch 12 is activated, only the location and ID of the aircraft is transmitted. If an aircraft lands and switch 14 of Ross is activated, only data relating to cancellation of the flight plan is transmitted.

The Examiner cites Miller '102 and argues that Miller '102 teaches vertical acceleration as one of the data parameters that can be transmitted. Miller '102 is directed to an aircraft data acquisition and recording system where either:

(a) an RF transmitter transmits data while the aircraft is in flight, in which snapshots of the monitored parameters of the flight performance at the instant the transmission is initiated are transmitted to ground stations (Miller '102, column 8, lines 25-50; column 19, lines 49-58); or

(b) aircraft maintenance personnel must bring a portable ground read-out unit 30 on board the aircraft after it has parked, in which case data indicative of the performance of significant portions of the flight is obtained (Miller '102, FIG. 1 and column 13, line 26 through column 14, line 25).

At most, the combination of Ross and Miller '102 would suggest a scenario in which the aircraft pilot activates emergency switch 15 to transmit: (1) GPS position; (2) the recorded flight plan as entered by the pilot initially before

take-off; (3) the instrumentation data taken from the instrument cockpit equipment relating to altitude, air speed and direction of the aircraft; and (4) the additional DFDAU data as a snapshot in real-time as suggested by Miller '102.

This data is transmitted in real-time while the aircraft is in flight. That data is not gathered and stored in-flight as claimed.

Miller '102 can accumulate long-term over the flight of the aircraft, but when the aircraft lands, there is no downloading of data. Instead, airport personnel must physically enter the plane and retrieve the data by inserting a disk.

Thus, the combination of Ross and Miller '102 when an aircraft lands would motivate one to transmit data automatically regarding the cancellation of the flight plan, while aircraft personnel would manually enter the plane to retrieve any additional flight data via a disk.

D. Claims 60 and 71 Are Not Obvious Over Ross, Miller '102, and Miller '717

Miller '717 is directed to collecting, analyzing and presenting geographical information that can be stored for later use. This information relates to data obtained from satellites, recognizance aircraft, photographs, maps, remote computer terminals and the like, and integrated into a generic Geographic Information System (GIS). This data can be manipulated by a user. Miller '717 may show the acquisition of some data from an aircraft and some use of a telecommunication network with internet connection, but Miller '717 does not suggest the claimed invention for gathering and storing in-flight data that includes time, air speed, altitude, vertical acceleration and heading data

relating to a flight of the aircraft and then downloading the data after the aircraft has landed.

E. Claims 61 and 72 Are Not Obvious Over Ross, Miller '102 and Bannister

Bannister shows a combination of a public switched telephone network (PSTN) and the internet. Bannister does not suggest the claimed invention in combination with the other cited prior art references. Bannister is specifically directed to a GSM and SMS system operative with an Interactive Voice Response (IVR) system allowing callers to send short messages to mobile terminals that use workstations to send short messages. Bannister is directed to the problem of avoiding the disadvantages known with Short Message Services where the caller may not have access to a workstation.

F. Claims 73 and 74 Are Not Obvious Over Ross, Miller '102 and Polivka

Polivka is directed to the aircraft industry and shows an aircraft data acquisition and transmission system that can acquire data through a video camera and encrypt and segment packets of data. It may provide some acknowledgment of data, but it is specifically directed to reducing the size of an aircraft antenna required to provide full broadcast quality video communications with an aircraft that communicates to the satellite communications link. Polivka teaches polarizing a receiver array to align with that of an incoming beam from the relay satellite by an error signal feedback path to control steering weights of the array. Thus, the size of the antenna can be reduced to increase the satellite-linked broadcast quality video communications with an aircraft.

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CONCLUSION

In view of the foregoing arguments, it is submitted that all of the claims are patentable over the prior art and no new matter has been added. Accordingly, the Board of Patent Appeals and Interferences is respectfully requested to reverse the earlier unfavorable decision by the Examiner to provoke an interference with Grabowsky.

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APPENDIX A - CLAIMS ON APPEAL
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59. An aircraft data transmission system, the aircraft having a data acquisition unit, and the aircraft including a data storage medium having stored thereon flight data gathered in-flight by at least a first sensor on the aircraft, comprising:

a communications unit located in the aircraft and in communication with the data acquisition unit;

at least a second sensor configured to sense a landing of the aircraft;

a cellular infrastructure in communication with said communications unit after the aircraft has landed, wherein the cellular infrastructure communicates said flight data, and wherein the communication is initiated when at least the second sensor senses the landing of the aircraft;

a data reception unit in communication with said cellular information; and

wherein said flight data includes time, airspeed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft.

60. The system of claim 59 wherein said data reception unit is in communication with said cellular infrastructure via the Internet.

61. The system of claim 59 wherein said data reception unit is in communication with said cellular infrastructure via the public switch telephone network.

62. The system of claim 59 wherein said communications unit has at least one modem in communication with said cellular infrastructure and said data reception unit has at least one modem in communication with said cellular infrastructure.

63. The system of claim 59 wherein said cellular infrastructure includes:

an antenna;

a transceiver subsystem in communication with said antenna; and

a controller in communication with said transceiver subsystem.

64. The system of claim 59 wherein said data reception unit includes:

a router; and

a processor in communication with said router, said processor having a storage unit.

65. An aircraft data transmission system, the aircraft having a data acquisition unit, the aircraft including a data storage medium having stored thereon flight data gathered in-flight by at least one sensor on the aircraft, comprising:

sensing means for sensing a landing of the aircraft;

means for transmitting said flight data from the data acquisition unit, via a cellular infrastructure after the aircraft has landed, wherein transmission of the data is initiated when the sensing means sense the landing of the aircraft;

means for receiving said flight data from said cellular infrastructure; and

wherein said flight data includes time, airspeed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft.

66. The system of claim 65 wherein said means for transmitting data includes a processor.

67. The system of claim 65 wherein said means for receiving data includes a processor.

68. A method of transmitting aircraft flight data from an aircraft, comprising:

receiving flight data from a data acquisition unit;

receiving a signal indicating a landing of the aircraft from at least a first sensor;

transmitting said flight data via a cellular communications infrastructure after the aircraft has landed, wherein the cellular communications infrastructure is accessed in response to the signal;

receiving said transmitted flight data; and

wherein said flight data is gathered in-flight by at least a second sensor on the aircraft, and includes time, airspeed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft.

69. A computer-implemented method of transmitting aircraft flight data from an aircraft, comprising:

receiving flight data from a digital flight data acquisition unit, wherein said flight data is gathered in-flight by at least a first sensor on the aircraft, and includes time, airspeed,

altitude, vertical acceleration, and heading data relating to a flight of the aircraft;

receiving a signal indicating a landing of the aircraft from at least a second sensor;

processing said flight data to prepare said data for transmission; and

transmitting said processed data via a cellular infrastructure after the aircraft has landed, wherein the cellular infrastructure is accessed in response to the signal.

70. The method of claim 69 further comprising receiving said transmitted data at a flight operations center.

71. The method of claim 70 further comprising receiving said transmitted data and transmitting said received data via the Internet before receiving said transmitted data at a flight operations center.

72. The method of claim 70 further comprising receiving said transmitted data and transmitting said received data via the public-switched telephone network before receiving said transmitted data at a flight operations center.

73. The method of claim 69 wherein processing said flight data includes:

compressing said flight data;

encrypting said flight data;

segmenting said flight data; and

constructing packets of data from said segmented flight data.

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74. The method of claim 69 wherein receiving said transmitted data includes:

acknowledging receipt of said transmitted data;

reassembling said received data;

decrypting said reassembled data;

uncompressing said decrypted data; and

storing said uncompressed data.

75. A computer readable medium having stored thereon instructions which when executed by a processor, cause the processor to perform the steps of:

receiving flight data from a digital flight data acquisition unit in an aircraft, wherein said flight data is gathered in-flight by at least a first sensor on the aircraft, and includes time, airspeed, altitude, vertical acceleration, and heading data relating to a flight of the aircraft;

receiving a signal indicating a landing of the aircraft from at least a second sensor;

processing said flight data to prepare said data for transmission; and

transmitting said processed data via a cellular infrastructure when said aircraft has landed, wherein the cellular infrastructure is accessed in response to the signal.

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APPENDIX B - EVIDENCE APPENDIX
PURSUANT TO 37 C.F.R. § 41.37(c)(1)(ix)

Exhibit 1: Federal Aviation Administration Section 121.343 (1994).

Exhibit 2: ARINC Flight Data Acquisition and Recording System Specification prepared by the Airline Electronics Engineering Committee and Published by Aeronautical Radio, Inc. (ARINC).

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APPENDIX C - RELATED PROCEEDINGS APPENDIX
PURSUANT TO 37 C.F.R. § 41.37(c)(1)(x)

None.